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## Building your own 3 Gun - Gun Cart

By Rolan Kraps, SASS # 24084

As a frequent poster/reader of the SASS Wire, I often see new shooters looking for gun cart plans. As a result, I thought it would be a good idea for the Chronicle to publish a "how to" article for those looking to build their own cart.

Over the years, I've designed and built several different gun carts. From "micro carts" that would fit in a 2 seat Mazda, to the infamous "War Wagon", which has to be lifted by two people... two STRONG people. Now I'm down to two. A large cart for "big shoots" and a small, 4 gun cart for smaller shoots and travel which will fit into Bea Itchin's (SASS #25123) SUV.

### The Annabel Lee

This is a gun cart that I designed for Annabel Lee (SASS # 29018). Annabel's husband's cart was painted flat black and not very "dainty". So when he works weekends, she wanted a cart that expressed her exquisite style. Here the features she requested:

#### Features

- small enough to lift in and out of her car by herself
- hold at least two long guns
- be easy to maneuver over rough terrain
- have a place to sit
- have "necessaries" close at hand (cell phone, keys, snacks, etc.) in a box without having to bend over.

What was NOT a requirement:

The cart did not need to:

- transport a cooler, and
- have provision for an umbrella

#### Tools Required

While the answer to this question is undoubtedly "whatever you can afford to buy or sneak into the house", the cart project we're going to do "requires" the following tools, followed by a "suggested" list of other "really nice to have" items.

##### Required Tools

Circular or Table Saw  
Drill with bits including:  
    1/2" Spade (or Forsner bit)  
    5/16" Drill Bit  
    #8 (1/16" Drill Bit)  
    #6 (3/32" Drill Bit  
    1/4" Brad Point or standard bit  
Screw Driver  
Tape Measure  
Hack Saw  
Framing Square  
Sand Paper (60-80 grit, 120-150 grit minimum)  
Wood Glue

##### Suggested Tools

Powered Screw Driver/Variable Speed Drill  
#6 Tapered Countersink bit  
#8 Tapered Countersink bit  
  
3/8" Tapered Plug Cutter  
Router with Assortment of Bits  
Corner and Bar Clamps  
Power Sander  
Drill Press  
Biscuit Jointer  
750 ml Makers Mark Bourbon

## Wood Selection

So now you're ready to go to the "Home Improvement Store" and/or Lumber yard. The first question is "what kind of wood do I get". For beginning wood workers, I recommend that for your first cart, you stay away from expensive woods like Mahogany, Teak, Walnut, Cherry, or Hard Maple. Also avoid really hard woods like White Oak or Red Oak. A good "first project choice" would be "Furniture Grade" Pine, Poplar, Cyprus, Soft Maple (which isn't very soft) or Ash. These woods tend to be easier to work and are cheaper to boot. The wood pictured in this article is Soft Maple.

## Bill of Materials

2 - Plow Handles (These can be ordered at the following site, although, I've had luck finding them at Flea Markets [www.farmerbrownsploughshop.com](http://www.farmerbrownsploughshop.com))

4 - 1"x4"x8' of the wood of your choice. These plans really call for 3.3 boards, but I like to have extra.

1 9" x36" shelf stock (for base of cart and key box) or if using hardwood, add one more 1"x4"x8'

1 - 1/2" x 3" Steel Rod (for axle)

2 - 12" wheels (from Northern Tool)

4 - 2" hinges

2 - 3" handles for removable box

2 - Draw Catches

1 box fine thread #6 x 1 1/4" Screws

1 coarse thread #8 x 3" Screw

4 - Coat Hooks

1 - 3/4" x 36" Dowel Rod

1 - 1/2" Nylon spacer

2 - "screw in" replacement legs of at least 4"

2 - Screw in Plates (you'll find them next to the legs)

4 - 1/2" Steel Washers

2 - 5/16" Retaining Clips

Paint or stain

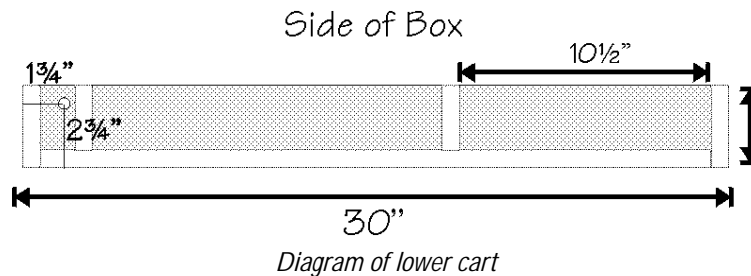
## Optional Materials

Self Stick 2mm Foam Rubber (to line gun rack and base)

Brass "corners" to "dress up" edges

## Step 1 - Preparing the Lower Cart

OK, let's get started. The diagram below illustrates what you'll be building in this step.



- Cut two lengths of 1x4 to 30".

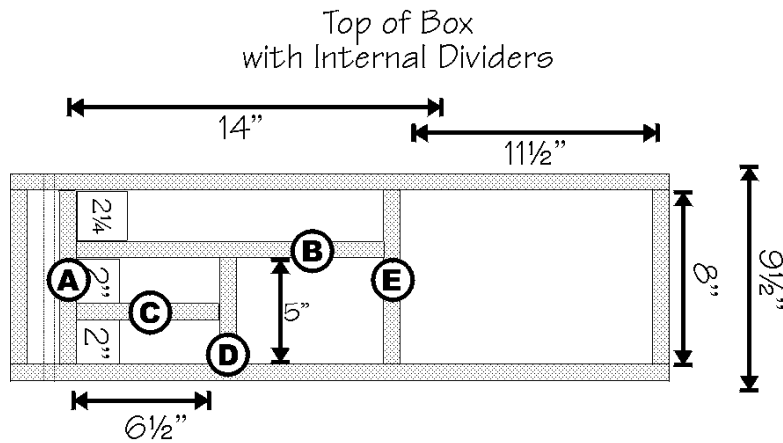
- Drill a  $\frac{1}{2}$ " hole through both boards.  $1\frac{3}{4}$ " by  $2\frac{3}{4}$ " from top left corner (as shown above) Set aside. This hole will be the pivot point for the gun rack and also serve as the axel for the cart.
- Rip a piece of the shelving to 8" wide by  $28\frac{1}{2}$ " long (this is for the base). If hardwoods are used, biscuit together and rip a board 8" wide.
- Cut 2 lengths of 1x4 board to 8" for the internal dividers.
- Drill, glue, and screw side boards outside of end boards.
- Drill, glue, and screw base inside of box.



*Photo of finished box*

## Step 2 – Adding Internal Dividers

Refer to the following drawing for this operation.



**NOTE:** Rip all dividers to a depth of  $2\frac{3}{4}$ " to fit inside the cart.

- Cut 2 lengths of 1x4 board to 8" for the internal dividers. (A) and (E)
- Rip these boards to  $2\frac{3}{4}$ " height.
- Cut a board to fit between the two internal dividers (B). Mine measured 14" even. This is for the double barrel shotgun divider. **NOTE:** The shotgun divider is so much longer than the Rifle/'97 divider to maintain the open shotgun at a 90° angle.

- Drill, glue, and screw rear-most internal divider just forward of the pivot hole (A).
- Drill, glue, and screw Shotgun Divider (B) against the back divider (A).
- Drill, glue, and screw front internal divider (E) at the front of the shotgun divider (B).
- Cut a divider for the Rifle/'97 to  $6\frac{1}{2}" \times 2\frac{3}{4}"$  (C).
- Cut a divider for front of the Rifle/'97 dividers to  $4\frac{3}{4}" \times 2\frac{3}{4}"$  (D).

*Option:* I like to use a router to "round over" the boards as shown in the photo below:

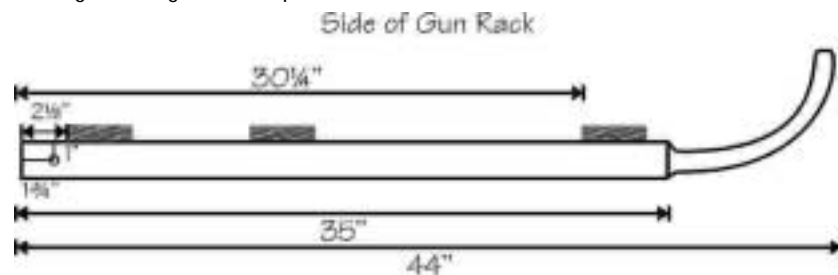


*Finished lower "Box" with dividers*

### Step 3 – Building the Gun Rack

This step will construct the "gun rack" part of the cart. NOTE: DO NOT USE SOFT PINE FOR THIS STEP! It's just not strong enough. Best to just get a piece of Oak or other hard wood.

Refer to the following drawing for this operation.



*Side view of "Gun Rack" assembly*

- Sand the plow handles well! They're usually rough.
- Cut the overall length of the plow handles to 44". The longer they are, the "higher" the handles will be. Do not make it too high or you trade off "compactness".
- Mark and drill a  $\frac{1}{2}"$  hole in the center of the handle (1"),  $1\frac{3}{4}"$  from the bottom of the handle.
- Slide the uncut piece of  $\frac{1}{2}"$  steel rod through the lower cart. Slide a plow handle on each side.
- MEASURE THE WIDTH OF THE LOWER CART WITH THE PLOW HANDLES. Take that measurement and add  $\frac{1}{8}"$  of an inch. On my cart, this measured  $12\frac{1}{2}"$ .
- Cut three boards to this measurement.
- The bottom board must be fit exactly  $2\frac{1}{2}"$  from the bottom. This is important, as this will be the load bearing board when you rock the cart back. Drill, glue, and screw this board in place.
- Next, drill, glue and screw the top cross piece in place  $30\frac{1}{4}"$  from the bottom.

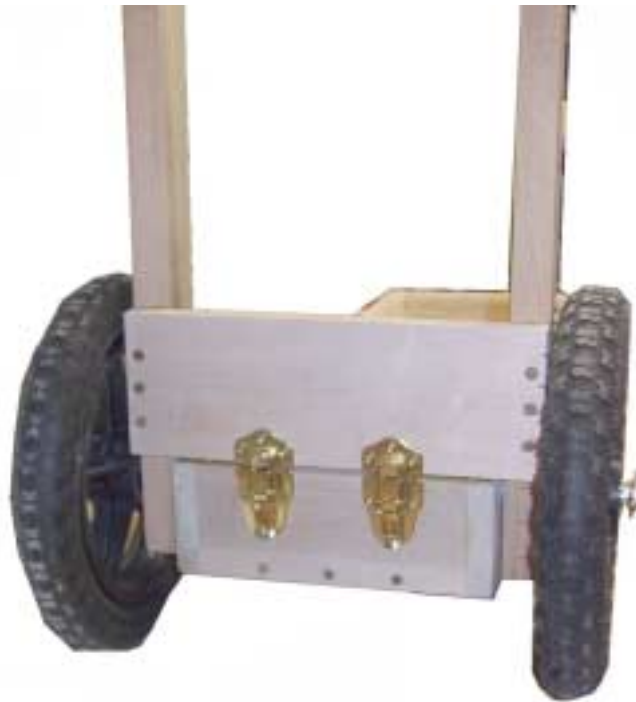
- A third brace is advisable. I place mine toward the bottom of the cart, about 12" from the bottom. Check this against the front divider in the gun box. When the cart is folded, I can set the removable box down in the front.

#### Step 4 - Adding the Wheels and Front Supports

**NOTE:** A drill Press is required for this operation. If you don't have one, or access to one substitute a ½" Threaded Steel rod for the ½" Steel Rod, and use 2, ½" nuts on each side, or a Nylon Nut.

##### Step 4A – Installing the Axel and Wheels

- Place the gun rack on top of the base of the cart.
- Thread the rod through the holes in the Gun rack and the base of the cart.
- Install the draw catches on the base of the box and the lowest brace of the gun rack.
- Add a washer on each side of the rod, and place the wheels on the rod.
- Adjust the rod until the end protrudes approximately ½" through the left side of the cart.
- Add a washer, and use a permanent marker to mark a spot to drill a 5/16" hole.
- Add the wheel and washer on the other side of the cart.
- Using the permanent marker, mark the spot to drill the 5/16" hole and add about ½" to mark where to cut the rod off.
- Remove Rod, drill two holes where marked and cut off Rod. **HINT:** I find it's best to drill the first hole, install the retaining pin, washers, wheel, *then* pull the rod through the cart to mark and screw.



*Photo of back of cart*

##### Step 4B – Adding Front Support

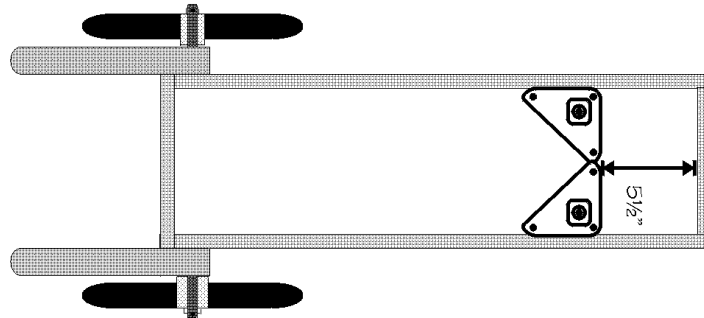
- Turn the cart over and measure 5" from the FRONT of the base of the box.
- Drill and screw the two foot plates onto the cart.

- Screw in legs.

*Hint:* I like to add the “nail in” furniture “feet” to my front supports to keep them from splitting.

- Stand cart up on a level surface. The cart base should be level or should only have a SLIGHT incline to the rear. You may have to saw off the front legs to level the cart.

*Bottom of Cart*



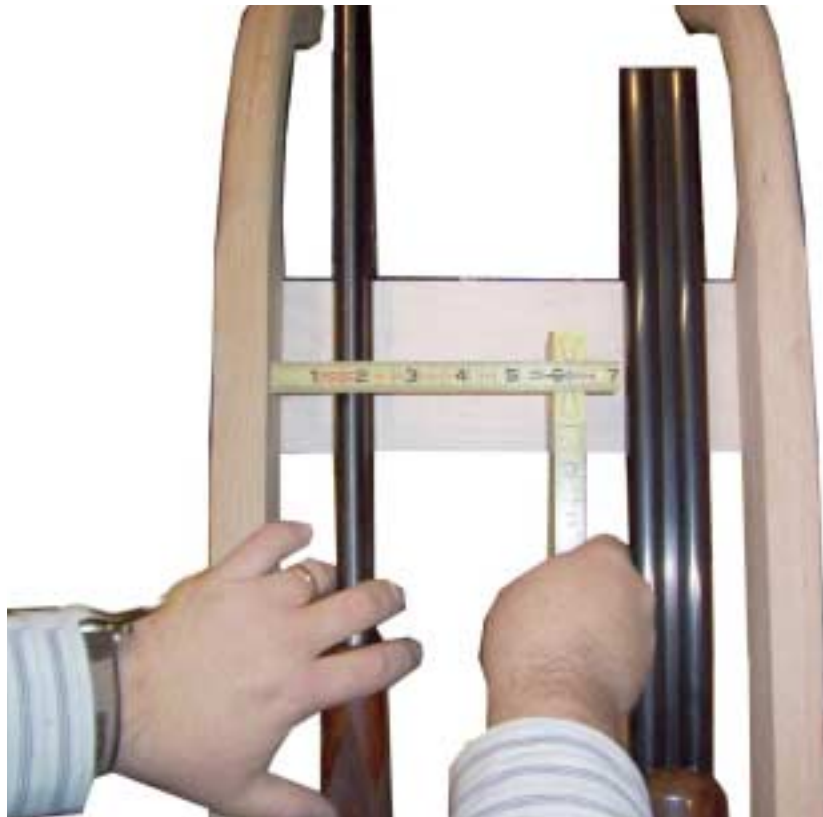
*Bottom of cart showing placement of screw-in plates*

### Step 5 – Building the Barrel Dividers

Now, go get your guns. Place your guns in the cart. Measure as illustrated in the picture below.

- Measure and cut 1x 4 to go between the barrels.

*Note:* On Annabel's cart, I took two pieces of Walnut and sandwiched a piece of Maple between them. I then glued them together and cut them for the dividers. Not any stronger, but looks terrific.



*Placement of dividers in gun rack*

- On Annabel's cart the left most divider (rifle) measured 1 1/4”.

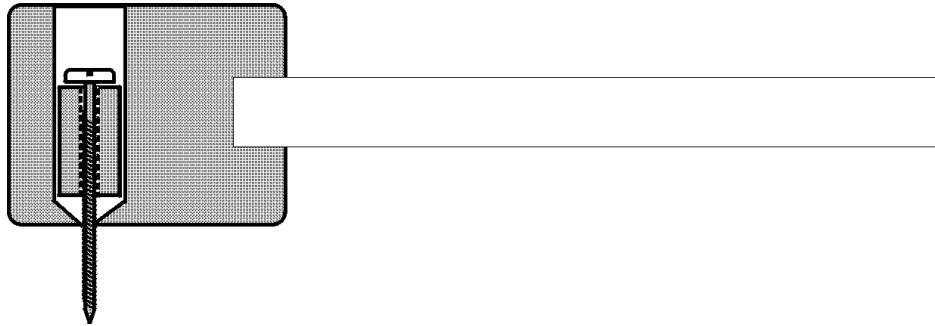
- Drill, glue, and screw and then move to the right.
- The distance between the right plow handle and the shotgun was 1".
- Drill, glue, and screw and then move to the left.
- Now cut two more pieces, 1 ¼"
- Drill, glue, and screw on the inside of the rifle and the inside of the shotgun, leaving a 2" space between. This is for a '97

Note: These are the dimensions for Annabel's guns. When building the cart, the builder should measure their guns.

### Step 6 – Building the Retaining Rod

The Retaining rod keeps the long guns from falling out of the cart. After years of development San Quentin (SASS Regulator #4818) came up with the best idea... a flip up pivoting rod.

- Cut three, 2" pieces of 1 x 4"
- Stack together, and glue together three pieces of 1 x 4"
- Allow these to dry overnight.
- Drill two-thirds of the way through the block with a ½" spade bit. With the #8 drill bit, drill the rest of the way, so your block looks like the one below.



*Cut away detail of retaining rod*



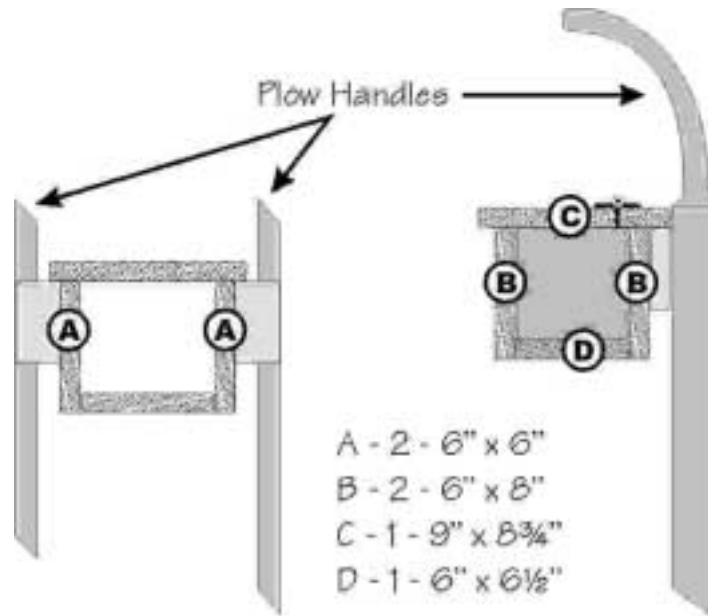
*Flip up retaining bar showing "sandwiched" Walnut and Maple blocks*

- Insert the nylon spacer in the hole as shown in the drawing.

- Drill a  $\frac{3}{4}$ " hole in the end of the block for the rod.
- Using a 3" #8 wood screw, attach the rod to the left plow handle of the gun rack. The Nylon spacer should permit the rod to pivot up and down freely.
- Insert the  $\frac{3}{4}$ " dowel rod into the hole in the block. With the rod horizontal, mark and cut at the right end of the plow handle.
- Drill and install a single coat hook on the right plow handle to "catch" the rod when horizontal.

## Step 7 – Building the Key Box

A small box on the back of the cart is useful for keys, snacks, cell phones, pens, and other things you want to be able to get at without bending over. This step creates a 6" x 8" box on the back of the cart. Refer to the drawing below for details.



*Key Box diagram from rear and side*

- The first step is to cut the sides of the box (piece (A) in the diagram). Cut two pieces of wood that measure 6" x 6". This board can be made from scraps from the shelf (used to make the base of the cart) or by biscuited boards.
- Cut out the front and rear pieces (pieces (B) ), to a size of 6" x 8".
- Cut one piece (D) at 6" x 6 $\frac{1}{2}$ "
- Cut one piece, (C), for the lid at 9" x 8 $\frac{3}{4}$ ". I prefer my lids over sized so that rain has at least a chance of rolling off the sides and not into the box.
- Drill, glue, and screw the sides (A) to the back (B).
- Drill, glue, and screw the bottom, (D), between the sides and the back (B).
- Drill, glue, and screw the partially assembled box to the back of the gun cart.
- Drill, glue, and screw the front piece of the box (B) to the gun rack.
- Take the lid (C), cut this board back 2" on the 9" length.
- Drill, glue, and screw the 2" piece to the back of the box and horizontal brace of the gun cart.
- Attach front part of door with hinges.

## Step 8 – Building the Removable Front Box

OK, so are you still with us? If you made it this far, you're ready for the next step!

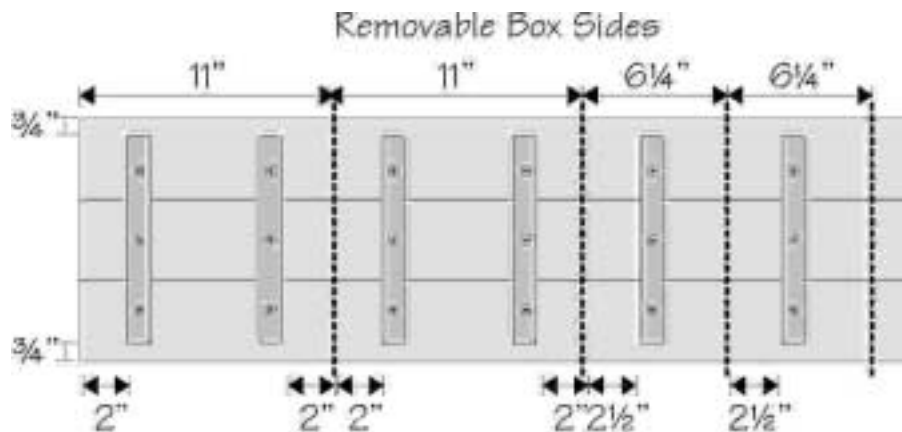
In this step, we'll make a removable box for the front of the gun cart. If you have a biscuit joiner, simply join the boards together and glue. If not...

Let's build a box. To fit in the cart, the external dimensions of the box need to be  $7\frac{3}{4}$ " by 11".

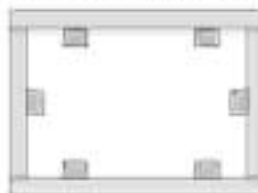
In order to save on wood, we'll "make" our own board.

### Making the Removable Box Sides

- Cut three boards, 36". **Note:** While this operation show that less than 36" total will be needed, it's always best to add a little bit to take the cut into account. Most blades loose  $\frac{1}{8}$ " on the cut. You should adjust accordingly.
- Call all your friends and ask them if they have a Biscuit Joiner you can borrow. If you can find one, and know how to use them, you really don't need these plans.
- Cut 6 boards that are 1"x9"
- Lay out the three boards as pictured below. Glue the boards together (Clamp 'em if you've got 'em).
- Glue the 6, 1" boards to the "sides" of the box.
- Using the # 6, 1" screws, screw one screw into each board.



*Removable Box Assembled*



*Removable box construction*

- Assemble the box so that the long edges (the 11" lengths) overlap the  $6\frac{1}{4}$ " sides. This will yield an external dimension of  $7\frac{1}{2}$ " inches. Drill, glue, and screw.

### Making the Box Floor and Lid

To make the floor of the box,

- Cut out two 1"x4" boards. You'll need a total of 10"x6".
- Fit each board into the top and bottom of the box.

- Drill, glue, and screw the top and bottom into the box
- Set aside to dry.
- On a table saw, set the rip fence to a depth of 2".
- Cut through the entire box, flip and run through again.
- This way, your top and bottom will match.
- Add hinges on the back.

### Finished Product

